California Monthly Climate Summary
October 2010

Weather Highlights

October 2010 started water year 2011 with a big storm that led to a cool wet month. According to the Western Region Climate Center's California Climate Tracker, the monthly average temperature was 58.0°F which is 0.3°F lower than the long-term average of 58.3°F. With a statewide average of 2.67 inches, precipitation for October was 218% of the long term average.

October started hot with a high pressure system moving over the state. However, by the end of the first week, a low pressure system arrived offshore of Baja California bringing monsoonal moisture into the southern part of the state triggering thunderstorms and showers. A system also moved out of the Gulf of Alaska bringing cooler air to the northern part of the state. The monsoonal moisture continued in southern California and over the Sierra in week 2 bringing some significant localized precipitation. High pressure began to build towards the latter part of the second week. Dry offshore flow in the first part of week three brought record high temperatures to the San Francisco Bay area. The end of week three saw a cold front pass over the state bringing widespread precipitation to the State and snow to the higher elevations. The fourth week of October saw a transition as storminess resided in the south during the first part of the week while the north part of the state enjoyed mild, dry conditions. By the end of the week, the south part of the state cleared up while a series of storms pounded the northern part of the state. Some locations received over 10 inches of precipitation during these events. October ended with mild dry conditions across the state.

Preliminary records, reported on the National Weather Service Record Event Report, shows that statewide there were 73 temperature records tied or broken and 42 precipitation records tied or broken for the month. Of the 73 temperature records, 32 were for new high minimum temperatures. Records were set over 25 days of the month. Bakersfield set an all-time high minimum temperature record on the 1st of October with a reading of 77°F. The old record was 72°F set on 10/2/2001. The Fresno-Yosemite International Airport also set an all time high minimum temperature record on October 2nd with a reading of 71°F. This broke the previous all time high minimum temperature record of 70°F set the day before. Prior to those two days, the previous high minimum record was 69°F set on October 4th, 1917. San Jose tied two 1901 records for a high maximum temperature with readings of 93°F on October 12th and 13th. San Diego set a new daily precipitation record on October 6th with 0.74 inches of rain. This broke the old record of 0.34 inches set back in 1912. In September, Bishop tied its all-time driest month with no precipitation. Things changed considerably in October when 1.34 inches fell, which ranks as the 4th wettest October since records began being kept in 1943. Baker and the Barstow-Daggett Airport recorded their second wettest October this year with 0.99 inches and 1.10 inches respectively.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 116 stations recorded a minimum temperature below freezing in October while only 12 stations reached or exceeded 100°F at least once during the month. Statewide extremes from the CDEC network of temperature gages are shown below. Also shown are the monthly average extremes from the CIMIS network. A table of regional average minimum, mean, and maximum temperatures from the CDEC and CIMIS networks is also shown at the end of the summary.

Precipitation in October was above normal for every region in the state. For the CDEC precipitation gages for October 2010, the largest amount of precipitation recorded was Bowman Dam on the Yuba River with 16.16 inches. This is 391% of the average precipitation for this station for October. At the other end of the spectrum, Coalinga in the Tulare Basin recorded only 0.04 inches for the month which is 15% of average. For the CIMIS network, Hopland Fire Station in Mendocino County topped the precipitation charts with 6.18 inches for the month and 9 stations recorded no precipitation. Some CIMIS gages may show large precipitation totals if the gages are not covered during irrigation activities so care should be given to review precipitation data used from this network. The 8-Station Index for northern California precipitation recorded 7.4 inches in October with 16 days showing precipitation. On average, 3 inches of precipitation is recorded for the 8-Station index in October. Statewide, the average precipitation for October was 282% of the long-term average based on the California Data Exchange Center (CDEC) gages. Precipitation percentages by region from the CDEC gages are shown in a table at the end of this document.

CoCoRaHS Update

October 2010 celebrates California's second anniversary with CoCoRaHS – the Community Collaborative Rain, Hail and Snow Network. This group uses citizen volunteers to record rain, hail and snow data. The users enter the data online at the CoCoRaHS web site. The web site provides the opportunity to see spatial detail of rain and snow patterns in participating states. After two years in the program California has more than 694 volunteers signed up spanning 52 of California's 58 counties. The county with the most volunteers at the end of October is Sonoma with 86 volunteers. For the month of October 8,761 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA in October was in Sonoma County with 8.65 inches recorded on 10/24/10. Seven hail reports were submitted in October with sizes ranging from pea size to 7/8th inch. Four snow reports were included with the precipitation reports. To join CoCoRaHS or find more information, please visit http://www.cocorahs.org.

Snowpack and Water Supply Conditions

Water year 2011 has begun for the water supply index categories. Water year 2010 resulted in a below normal category for the Sacramento Basin and above normal category for the San Joaquin Basin. The first forecast for WY 2011 will be made in December. Water supply information for California can be found at http://cdec.water.ca.gov/water_supply.html. A historical listing of water year

categories for both basins can be found at http://cdec.water.ca.gov/cgi-progs/iodir/WSIHIST.

Drought Monitor and Seasonal Outlook

October's big storm led to improvements in the depiction of California's drought in the Drought Monitor. The maps for California for September 28, 2010 and October 26, 2010 are shown below. The Drought Monitor maps can be found on the National Drought Mitigation Center's (NDMC) website http://drought.unl.edu/dm/. These maps are largely a reflection of precipitation and soil moisture deficit estimates. As of the October 26th depiction, the entire state of California is depicted in either D0 (abnormally dry), or D1 (moderate drought) conditions, or D2 (severe drought) conditions. The D2 category is down to 0.2%. Drought free area in California increased from 85.4% to 90.1%. Maps are updated weekly.

The U.S. Seasonal Drought Outlook for November through January from NOAA depicts California with improving conditions in the far northeast part of the state and persisting conditions just below that. Updates are provided twice per month. Maps and information can be found at http://www.cpc.noaa.gov/products/expert_assessment/seasonal_drought.html.

The California Nevada River Forecast Center has begun producing some drought monitoring tools for California. These tools look at the frequency associated with precipitation deficits for the Northern California Eight Station Index and the San Joaquin Five Station Index. Another tool looks at the frequency of end-of-month storage for select reservoirs in California. The frequencies of the observations are related to the Drought Monitor's drought categories D0 through D4. These tools can be found at http://www.cnrfc.noaa.gov/climate.php. For October, the Eight Station Index is in drought free conditions for both the 12-month period and for the 24 month period. The Five Station Index is drought free for both periods as well. For the reservoirs for end-of-October storage, Casitas is the only reservoir at D1, while Oroville, Lake Tahoe, and Beryessa are at D0 conditions. All other reservoirs on the graphic are considered to be drought free.

ENSO Conditions and Long-Range Outlooks

The El Niño/Southern Oscillation (ENSO) is being classified as a La Niña pattern. Equatorial sea surface temperature anomalies for the tropical Pacific for October have been negative with values of -1.4°C in the Niño 3.4. The August through October 3-month running mean of the Ocean Niño Index (ONI) is -1.3 which is the fourth ONI value exceeding the threshold to qualify for a La Niña event. For conditions to be classified as a La Niña event, five consecutive ONI values need to be less than the threshold value of -0.5. Most forecast models have the tropical sea surface temperatures remaining in La Niña conditions through the early part of 2011. More information can be found at the Climate Prediction Center's web site: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/

Updates are posted weekly. The latest three month outlook (November through January) from NOAA indicates equal chances for above or below normal temperatures for most of the state of California with the exception of the North Coast region which is expected to have below normal temperatures. For precipitation, the far north of the state is forecast to have above normal conditions with equal chances for above or below normal precipitation elsewhere. Outlook plots and discussions can be fount at http://www.wrcc.dri.edu/longrang/. General weather information of interest can be found at http://www.noaawatch.gov/. For anomaly information please see http://www.wrcc.dri.edu/anom/cal_anom.html.

Agricultural Data

Harvest continued or neared completion for many crops in October for California. Rice, alfalfa, Sudan hay, sunflower, bean, and safflower harvest all continued. Some rice crops were damaged by the late-month storm due to strong winds. The fall sugar beet harvest began to wind down. In addition, grapes, apples, figs, peaches, plums, and nectarines were being harvested and neared completion for some. Pomegranate and olive harvests moved into full swing during the month. Nut harvests continued and were near complete by the end of the month. Post harvest irrigation was carried out in some orchards. Vegetable harvests continued with some fall plantings started. Pumpkin harvests were completed in San Joaquin and El Dorado Counties. Cattle herds began being transferred from summer pastures to winter pastures. For further crop information see http://www.nass.usda.gov/index.asp.

Other Climate Summaries

California Climate Tracker (new product of Western Region Climate Center)
Golden Gate Weather Service Climate Summary
NOAA Monthly State of the Climate Report

Statewide Extremes (CDEC)

High Temperature – 105°F (Buttercup, Colorado River Desert)
Low Temperature – -5°F (Casa Vieja Meadows, Tulare)
High Precipitation – 16.16 inches (Bowman Dam, Sacramento Basin)
Low Precipitation – 0.04 inches (Coalinga, Tulare Basin)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 93.4^0F (Long Beach, Los Angeles County)
Low Average Minimum Temperature – 32.4^0F (Big Bear Lake, San Bernardino County)
High Precipitation – 6.18 inches (Hopland Fire Station, Mendocino County)*
Low Precipitation – 0 inches (9 stations)
*Sometimes irrigation water from sprinklers gets counted as precipitation if the gage is not covered.

Statewide Precipitation Statistics

Hydrologic Region	Region Weight	Basin Reporting			Stations Reporting			% of Historic Average	
		Basins	Oct	Oct	Stations	Oct	Oct	Oct	Oct
North Coast	0.27	5	3	3	17	9	9	260.8%	261%
SF Bay	0.03	2	2	2	6	3	3	215.1%	215%
Central Coast	0.06	3	3	3	11	5	5	235.7%	236%
South Coast	0.06	3	3	3	14	12	12	623.0%	623%
Sacramento River	0.26	5	5	5	41	23	23	255.0%	255%
San Joaquin River	0.12	6	6	6	24	11	11	295.3%	295%
Tulare Lake	0.07	5	5	5	28	19	19	182.9%	183%
North Lahontan	0.04	3	3	3	13	7	7	329.9%	330%
South Lahontan	0.06	3	3	3	15	5	5	255.8%	256%
Colorado River	0.03	1	1	1	6	1	1	363.6%	364%
Statewide Weighted Average	1	36	34	34	175	95	95	282.4%	282%

Statewide Mean Temperature Data by Hydrologic Region (degrees F)

Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	31	34.0	54.4	84.1
SF Bay	17	45.9	60.0	80.5
Central Coast	35	45.7	59.4	80.3
South Coast	68	45.6	61.5	88.3
Sacramento	89	33.7	56.0	86.6
San Joaquin	72	33.8	53.6	75.5
Tulare Lake	19	39.2	56.5	80.3
North Lahontan	9	27.0	49.4	77.5
South Lahontan	19	31.8	51.5	74.5
Colorado River Desert	21	55.9	72.5	90.2
Statewide Weighted Average	381	35.9	55.6	82.8

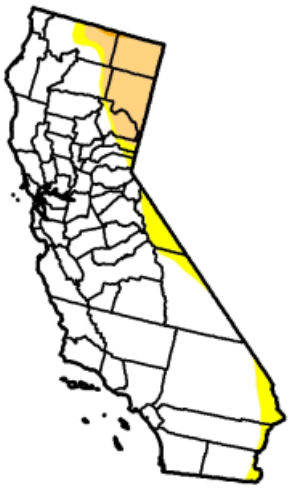
U.S. Drought Monitor

September 28, 2010
Valid 7 a.m. EST

California

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	85.4	14.6	8.1	0.2	0.0	0.0
Last Week (09/21/2010 map)	85.4	14.6	8.1	0.2	0.0	0.0
3 Months Ago (07/06/2010 map)	88.0	12.0	8.1	0.2	0.0	0.0
Start of Calendar Year (01/05/2010 map)	6.6	93.4	72.8	9.0	0.0	0.0
Start of Water Year (10/06/2009 map)	0.0	100.0	73.4	45.8	0.0	0.0
One Year Ago (09/29/2009 map)	0.0	100.0	73.4	45.8	0.0	0.0



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

http://drought.unl.edu/dm

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Author: R. Heim/L. Lov-Brotak, NCDC/NOAA

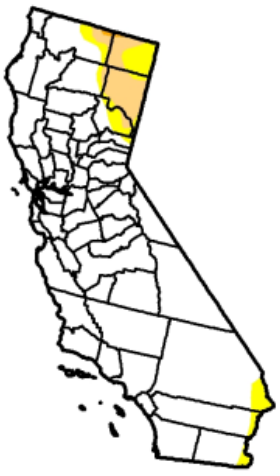
U.S. Drought Monitor

October 26, 2010
Valid 7 a.m. EST

California

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	90.1	9.9	4.6	0.2	0.0	0.0
Last Week (10/19/2010 map)	88.1	11.9	6.1	0.2	0.0	0.0
3 Months Ago (08/03/2010 map)	85.4	14.6	8.1	0.2	0.0	0.0
Start of Calendar Year (01/05/2010 map)	6.6	93.4	72.8	9.0	0.0	0.0
Start of Water Year (10/05/2010 map)	85.4	14.6	8.1	0.2	0.0	0.0
One Year Ago (10/27/2009 map)	9.1	90.9	62.5	17.7	0.0	0.0



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http://drought.unl.edu/dm

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Author: Eric Luebehusen, U.S. Department of Agriculture